UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/757,090	01/13/2004	Felix Hirt	015258-062000US	3546

20350 7590 12/05/2005

TOWNSEND AND TOWNSEND AND CREW, LLP
TWO EMBARCADERO CENTER
EIGHTH FLOOR
SAN FRANCISCO, CA 94111-3834

EXAMINER	
JAWORSKI, FRANCIS J	
ART UNIT	**PAPER NUMBER**
3737	

DATE MAILED: 12/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/757,090	HIRT ET AL.	
	Examiner	Art Unit	
	Jaworski Francis J.	3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *1-13-04 IDS*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *1-13-04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

The specification is queried regarding applicant'a use of the term 'stereoscopic' in the claims. In the vernacular 'stereoscopic' pertains to either an (optical stereoscope) picture of an object taken from two slightly differing points of view and viewed each by one eye producing the appearance of a single picture with some depth or relief, or pertaining to three-dimensional vision or to any means giving the illusion of such vision such as the stereoscopic technique. (Random House College Dictionary 1st Ed.).

In the context of optic endoscopic viewing the terminology appears to be interchangeable with 'three-dimensional viewing' since otherwise in conventional single view observations only a flat two dimensional surface is rendered, see usage in Breidenthal et al (US6139490) col. 1 – 3 discussion. In ultrasound however, since the two-dimensional B-scan contains subsurface or depth information (and therefore only C-scans or surface scans i.e. planar or non-planar constant depth scans are analogous to the optic, vernacular case) the terms ' three-dimensional' and 'stereoscopic' in relation to viewing are non-identical. For example in Herres (US5070879) in cols. 1 line 49 – col. 2 line 12 and in col. 5 a catheter long-axis scanner likenable by genre to EP-A-0 926 491 discussed by the applicant produces two orthogonal planes or a three-dimensional sector volume of data viewable by different perspectives or a complete 360 degree cylindrical 3-D volume set but is not readily characterized as 'stereoscopic' in the sense of being analogized to viewing by two offset eyes. Yet the aforementioned EP document when discussed in specification pages 1 – 2 bridging is referred to as

'stereoscopic' apparently equated to 'three-dimensional' since it is not foreseen how the system could pertain to offset viewing requisite to the former definition, the offset provided by transducer staggering seemingly being devoted to increasing line density in a single-view B-mode image and not to producing two stereoscopically offset images.. Additionally, at end-page 1 the sentence "Switched...carrier". Appears to have a non-sequitur which impedes the interpretation. Ultrasound stereoscopic systems are known for both 'in-body' (Oakley et al US5503152) and body surface types (Kamiyama US5993391, Takeuchi US5823963, Schoolman US5488952) however in such cases it appears that parallax viewing is always had.

This interpretive uncertainty incorporates into both a 112 paragraph 1st and paragraph 2d rejection below since the ambiguity may point to a disclosure adequacy issue and/or to a confusion regarding the claims' scope.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> **The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.**

Claims 1 – 10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Specifically, in consideration of the above-cited reference documents and

definitions, in order for applicant's device to provide a stereoscopic result as the ultrasound art uses this term, some description must be provided of the scanline control and image assembling components soas to produce stereoscopic viewing for this particular in-body mechanical scan construct. That is, since the scanline beam directions produced by rotating array sections 4 and 5 changes in interior angle dependent upon where the firing occurs rotationally (from convergent such angulation to divergent angulation) then analogizing to Herres et al if a longitudinal planar scan is produced by each section 4, 5 at a single rotation angle on the convergent side then the composite is not stereoscopic but merely overlapping since one dimension is depth; if a volume sector is produced by each of 4, 5 on the convergent side then a stereoscopic parallax-type view could be had but only by specialized processing, and on the divergent side this would be impossible. Using the optic, eye-viewing analogy, a proper stereoscopic view is visually had by offset convergent viewing to a focal depth otherwise the view would be unusably 'cross-eyed' (convergent strabismus) or 'wandering-eyed' (divergent strabismus, both eyes wandering towards ears).

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> **The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.**

Claims 1 – 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. There is confusion as to scope since 'stereoscopic' may pertain only to production of true parallax ultrasound views as per Oakley et al,

Schoolman, Kamiyama, Takeuchi, or merely to an imaging scheme providing some volumetric scan format and therefore some depth such as Herres et al.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> **(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> **(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.**

Claims 1 – 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oakley et al (US5503152 in view of Hossack et al (US5735282) alone or further in view of Gruner et al (EP 0654245, of record with the IDS filed on 1-13-04) Oakley et al teaches an ultrasound longitudinal-axis stereoscopic probe including rotational embodiments. It would have been obvious in view of Hossack et al to make such a longitudinal ultrasound probe flexibly articulated in order to conform to the body interior, and to have a bias force towards a stable positional state, see col. 8 lines 42 – 52 as exemplary. In the alternative, it would have bee further obvious in view of Gruner et al

to provide a re-setting force or home orientation since this allows the device to act in concert with tissue to provide positive engagement for ultrasound transmission.

Any inquiry concerning this communication should be directed to Jaworski Francis J. at telephone number 571-272-4738.

Francis J Jaworski
Primary Examiner

FJJ:fjj

11292005